## AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of claims:**

1-26. **(Cancelled)**

27. **(Currently Amended)** A method of identifying a gene that affects glucose transport, the method comprising:

(a) contacting a culture of ~~an~~ isolated adipocytes ~~adipocyte having a cell membrane~~ with ~~an~~ siRNA targeted against the gene, thereby forming a mixture;

(b) electroporating the mixture under conditions such that ~~the cell membrane becomes permeablized and~~ the siRNA is introduced into the adipocytes at an efficiency such that expression of the targeted gene is reduced by at least 70% in the culture of adipocytes when maintained ~~isolated adipocyte;~~

~~(c) culturing the isolated adipocyte~~ under conditions suitable for ~~expression of the targeted gene and such that~~ the siRNA to mediate ~~mediates~~ RNAi of the targeted gene; and

(c)~~(d)~~ assaying glucose transport in the adipocytes~~isolated adipocyte~~, wherein a modulation in glucose transport indicates that the targeted gene affects glucose transport; thereby identifying a gene that affects glucose transport.

28-37. **(Cancelled)**

38. **(Previously Presented)** The method of claim 27 or 79, wherein the electroporation is carried out at between about 0.01 kV and about 2.0 kV, and at between about 350 μF and about 1550 μF capacitance.

39. **(Previously Presented)** The method of claim 27 or 79, wherein the electroporation is carried out at between about 0.02 kV and about 1.0 kV, and at between about 500 μF and about 1350 μF capacitance.

40. **(Previously Presented)** The method of claim 27 or 79, wherein the electroporation is carried out at between about 0.05 kV and about 0.5 kV, and at between about 750 μF and about 1150 μF capacitance.

41. **((Previously Presented)** The method of claim 27 or 79, wherein the electroporation is carried out at between about 0.1 kV and about 0.25 kV, and at between about 850 μF and about 1050 μF capacitance.

42. **(Previously Presented)** The method of claim 27 or 79, wherein the electroporation is carried out at between about 0.1 kV and about 0.25 kV, and at between about 900 μF and about 1000 μF capacitance.

43. **(Previously Presented)** The method of claim 27 or 79, wherein the electroporation is carried out at about 0.18 kV and 960 μF capacitance.

44. **(Previously Presented)** The method of claim 27 or 79, wherein the electroporation is carried out at room temperature.

45. **(Previously Presented)** The method of claim 27 or 79, wherein glucose transport is assayed at least 12 hours following electroporation.

46. **(Previously Presented)** The method of claim 27 or 79, wherein glucose transport is assayed between about 24 and 48 hours following electroporation.

47. **(Previously Presented)** The method of claim 27 or 79, wherein increased glucose transport indicates that the targeted gene affects glucose transport.

48. **(Previously Presented)** The method of claim 27 or 79, wherein reduced glucose transport indicates that the targeted gene affects glucose transport.

49. **(Previously Presented)** The method of claim 27 or 79, wherein glucose transport is assayed by assaying insulin-mediated glucose uptake.

50. **(Previously Presented)** The method of claim 27 or 79, wherein glucose transport is assayed by assaying insulin-mediated GLUT4 translocation.

51. **(Currently Amended)** The method of claim 27 or 79, wherein the siRNA is sufficiently complementary to the mRNA of the targetedtarget gene to mediate RNAi.

52. **(Previously Presented)** The method of claim 27 or 79, wherein the siRNA comprises at least one deoxyribonucleotide or nucleotide analog.

53. **(Previously Presented)** The method of claim 52, wherein the siRNA comprising at least one deoxyribonucleotide or nucleotide analog has increased stability relative to an siRNA lacking the at least one deoxyribonucleotide or nucleotide analog.

54. **(Previously Presented)** The method of claim 53, wherein the siRNA comprising at least one deoxyribonucleotide or nucleotide analog has increased RNAi activity relative to an siRNA lacking the at least one deoxyribonucleotide or nucleotide analog.

55. **(Previously Presented)** The method of claim 53, wherein the siRNA comprising at least one deoxyribonucleotide or nucleotide analog has reduced RNAi activity relative to an siRNA lacking the at least one deoxyribonucleotide or nucleotide analog.

56. **(Currently Amended)** The method of claim 27 or 79, wherein the adipocytes are human adipocytesadipocyte is a human adipocyte.

57. **(Currently Amended)** The method of claim 27 or 79, wherein the adipocytes are adipocyte is a non-human mammalian adipocytesadipocyte.

58. **(Currently Amended)** The method of claim 27 or 79, wherein the gene is expressed exogenously in the adipocytes~~adipocyte~~.

59. **(Currently Amended)** The method of claim 27 or 79, wherein the gene is expressed endogenously in the adipocytes~~adipocyte~~.

60. **(Withdrawn; Currently Amended)** A method of identifying a gene that affects glucose transport, the method comprising:

(a) contacting a culture of ~~an~~ isolated adipocytes ~~adipocyte having a cell membrane~~ with a nucleic acid molecule, wherein the nucleic acid is capable of expressing ~~an~~ siRNA targeted against the gene, thereby forming a mixture;

(b) electroporating the mixture under conditions such that ~~the cell membrane becomes permeablized and~~ the nucleic acid molecule is introduced into the adipocytes at an efficiency such that expression of the targeted gene is reduced by at least 70% in the culture of adipocytes when maintained ~~isolated adipocyte;~~

~~(c) culturing the cell~~ under conditions suitable for ~~expression of the targeted gene and the siRNA, and under conditions such that~~ the siRNA to mediate ~~mediates~~ RNAi of the targeted gene; and

(d) assaying glucose transport in the adipocytes~~cell~~, wherein a modulation in glucose transport indicates that the targeted gene affects glucose transport;

thereby identifying a gene that affects glucose transport.

61. **(Withdrawn)** The method of claim 60, wherein the electroporation is carried out at between about 0.01 kV and about 2.0 kV, and at between about 350 μF and about 1550 μF capacitance.

62. **(Withdrawn)** The method of claim 60, wherein the electroporation is carried out at between about 0.02 kV and about 1.0 kV, and at between about 500 μF and about 1350 μF capacitance.

63. **(Withdrawn)** The method of claim 60, wherein the electroporation is carried out at between about 0.05 kV and about 0.5 kV, and at between about 750 μF and about 1150 μF capacitance.

64. **(Withdrawn)** The method of claim 60, wherein the electroporation is carried out at between about 0.1 kV and about 0.25 kV, and at between about 850 μF and about 1050 μF capacitance.

65. **(Withdrawn)** The method of claim 60, wherein the electroporation is carried out at between about 0.1 kV and about 0.25 kV, and at between about 900 μF and about 1000 μF capacitance.

66. **(Withdrawn)** The method of claim 60, wherein the electroporation is carried out at about 0.18 kV and 960 μF capacitance.

67. **(Withdrawn)** The method of claim 60, wherein the electroporation is carried out at room temperature.

68. **(Withdrawn)** The method of claim 60, wherein glucose transport is assayed at least 12 hours following electroporation.

69. **(Withdrawn)** The method of claim 60, wherein glucose transport is assayed between about 24 and 48 hours following electroporation.

70. **(Withdrawn)** The method of claim 60, wherein increased glucose transport indicates that the targeted gene affects glucose transport.

71. **(Withdrawn)** The method of claim 60, wherein reduced glucose transport indicates that the targeted gene affects glucose transport.

72. **(Withdrawn)** The method of claim 60, wherein glucose transport is assayed by assaying insulin-mediated glucose uptake.

73. **(Withdrawn)** The method of claim 60, wherein glucose transport is assayed by assaying insulin-mediated GLUT4 translocation.

74. **(Withdrawn)** The method of claim 60, wherein the siRNA is sufficiently complementary to the mRNA of the targeted gene to mediate RNAi

75. **(Withdrawn; Currently Amended)** The method of claim 60, wherein the isolated adipocytes are ~~adipocyte is a~~ human adipocytes~~adipocyte~~.

76. **(Withdrawn; Currently Amended)** The method of claim 60, wherein the isolated adipocytes are~~adipocyte is a~~ non-human mammalian adipocytes~~adipocyte~~.

77. **(Withdrawn; Currently Amended)** The method of claim 60, wherein the targeted gene is expressed exogenously in the isolated adipocytes~~adipocyte~~.

78. **(Withdrawn; Currently Amended)** The method of claim 60, wherein the targeted gene is expressed endogenously in the isolated adipocytes~~adipocyte~~.

79. **(Currently Amended)** A method of identifying a gene involved in an insulin response disease or disorder, the method comprising:

(a) contacting a culture of ~~an~~ isolated adipocytes~~adipocyte having a cell membrane~~ with ~~an~~ siRNA targeted against the gene, thereby forming a mixture;

(b) electroporating the mixture under conditions such that ~~the cell membrane becomes permeablized and~~ the siRNA is introduced into the adipocytes at an efficiency such that expression of the targeted gene is reduced by at least 70% in the culture of adipocytes when maintained ~~isolated adipocyte;~~

~~(c) culturing the isolated adipocyte~~ under conditions suitable for ~~expression of the targeted gene and such that~~ the siRNA to mediate~~mediates~~ RNAi of the targeted gene; and

(c) ~~(d)~~ assaying glucose transport in the adipocytes~~isolated adipocyte~~, wherein a modulation in glucose transport indicates that the targeted gene is involved in an insulin response disease or disorder;

thereby identifying a gene that is involved in an insulin response disease or disorder.

80. **(Withdrawn; Currently Amended)** A method of identifying a gene involved in an insulin response disease or disorder, the method comprising:

(a) contacting a culture of ~~an~~ isolated adipocytes ~~adipocyte having a cell membrane~~ with a nucleic acid molecule, wherein the nucleic acid is capable of expressing ~~an~~ siRNA targeted against the gene, thereby forming a mixture;

(b) electroporating the mixture under conditions such that the ~~cell membrane becomes permeablized and~~ the nucleic acid molecule is introduced into the adipocytes at an efficiency such that expression of the targeted gene is reduced by at least 70% in the culture of adipocytes when maintained ~~isolated adipocyte;~~

~~(c) culturing the cell~~ under conditions suitable for ~~expression of the targeted gene and the siRNA, and under conditions such that~~ the siRNA to mediate~~mediates~~ RNAi of the targeted gene; and

(c) ~~(d)~~ assaying glucose transport in the adipocytes~~cell~~, wherein a modulation in glucose transport indicates that the targeted gene is involved in an insulin response disease or disorder;

thereby identifying a gene involved in an insulin response disease or disorder.

81. **(Original)** The method of claim 79 or 80, wherein the disease or disorder is selected from the group consisting of Type II diabetes, insulin resistance and obesity.

82. **(Previously Presented)** The method of claim 27 or 79, wherein the mixture comprises 0.1 – 80 nmole siRNA and 1-10 million adipocytes.

83. **(Previously Presented)** The method of claim 27 or 79, wherein the mixture comprises about 20 nmole siRNA and about $5 \times 10^6$ adipocytes.

84. **(Currently Amended)** A method of identifying a gene that affects glucose transport, the method comprising:

(a) contacting a culture of ~~an~~ isolated adipocytes~~adipocyte having a cell membrane~~ with ~~an~~ siRNA targeted against the gene, thereby forming a mixture, wherein the mixture comprises 0.1 – 80 nmole siRNA and 1-10 million adipocytes;

(b) electroporating the mixture under conditions such that ~~the cell membrane becomes permeablized and~~ the siRNA is introduced into the adipocytes at an efficiency such that expression of the targeted gene is reduced by at least 70% in the culture of adipocytes when maintained under conditions suitable for the siRNA to mediate RNAi of the targeted gene~~isolated adipocyte~~, wherein the electroporation is carried out at between about 0.01 kV and about 2.0 kV, and at between about 350 μF and about 1550 μF capacitance;

~~(c) culturing the isolated adipocyte under conditions suitable for expression of the targeted gene and such that the siRNA mediates RNAi; and~~

(c) ~~(d)~~ assaying glucose transport in the adipocytes~~isolated adipocyte~~, wherein a modulation in glucose transport indicates that the targeted gene affects glucose transport; thereby identifying a gene that affects glucose transport.

85. **(Currently Amended)** A method of identifying a gene involved in an insulin response disease or disorder, the method comprising:

(a) contacting a culture of ~~an~~ isolated adipocytes~~adipocyte having a cell membrane~~ with ~~an~~ siRNA targeted against the gene, thereby forming a mixture, wherein the mixture comprises 0.1 – 80 nmole siRNA and 1-10 million adipocytes;

(b) electroporating the mixture under conditions such that ~~the cell membrane becomes permeablized and~~ the siRNA is introduced into the adipocytes at an efficiency such that expression of the targeted gene is reduced by at least 70% in the culture of adiopcytes when maintained under conditions suitable for the siRNA to mediate RNAi of the targeted gene~~isolated adipocyte~~, wherein the electroporation is carried out at between about 0.01 kV and about 2.0 kV, and at between about 350 μF and about 1550 μF capacitance;

~~(c) culturing the isolated adipocyte under conditions suitable for expression of the targeted gene and such that the siRNA mediates RNAi; and~~

(c) ~~(d)~~ assaying glucose transport in the adipocytes~~isolated adipocyte~~, wherein a modulation in glucose transport indicates that the targeted gene is involved in an insulin response disease or disorder;

thereby identifying a gene that is involved in an insulin response disease or disorder.

86. **(New)** A method of identifying a gene that affects glucose transport, the method comprising:

(a) contacting a culture of isolated adipocytes with siRNA targeted against the gene, thereby forming a mixture;

(b) electroporating the mixture under conditions such that the siRNA is introduced into the adipocytes at an efficiency such that expression of the targeted gene is reduced by at least 90% in the culture of adipocytes when maintained under conditions suitable for the siRNA to mediate RNAi of the targeted gene; and

(c) assaying glucose transport in the adipocytes, wherein a modulation in glucose transport indicates that the targeted gene affects glucose transport;

thereby identifying a gene that affects glucose transport.